



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,594	07/28/2003	Rudolf Braun	091-0187	1654
27431	7590	11/16/2005	EXAMINER	
SHIMOKAJI & ASSOCIATES, P.C. 8911 RESEARCH DRIVE IRVINE, CA 92618			HONG, JOHN C	
			ART UNIT	PAPER NUMBER
			3726	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/630,594	Applicant(s) BRAUN, RUDOLF	
	Examiner John C. Hong	Art Unit 3726	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,9-11,13-21,23-25,27-30,32 and 33 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1,2,4,9-11,13-19,21,23-25,27-30,32 and 33 is/are rejected.
 7) ☐ Claim(s) 5 and 20 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/10/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1,2,4,5,9-11,13-21,23-25,27-30,32 and 33 in the reply filed on 9/2/05 is acknowledged.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1,2,4,9,11,13-16 and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Mahringer et al. (U.S. Patent 3517771).

Regarding Claim(s) 1, AAPA as found on page 1, line 23 – page 4 line 25 of the specification, discloses a device for automated composite lay up using a material delivery head.

But AAPA fails to teach the device, comprising: a mandrel having a vertical axis and an outside mold surface on the inside of the mandrel, a vertical movement shaft disposed inside the mandrel, an arm mechanism, supported by the vertical movement shaft, that moves and positions the material delivery head inside the mandrel, wherein composite material is delivered directly to the outside mold surface.

Mahringer et al. teach the device, comprising: a mandrel (1) having a vertical axis and an outside mold surface on the inside of the mandrel, a vertical movement shaft (8,9,10) disposed

inside the mandrel, an arm mechanism (29), supported by the vertical movement shaft, that moves and positions the material delivery head inside the mandrel, wherein the material is delivered directly to the outside mold surface (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the device of Mahringer et al. with the device of AAPA so as to position workmen and material at an elevation to permit the operation inside the mandrel (col. 1, lines 39-41).

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham, 2 USPQ 2d 1647 (1987)*.

Regarding Claim 2, Mahringer et al. teach a platform (7) supported by the vertical movement shaft wherein the platform moves vertically up and down inside the mandrel (Fig. 1).

Regarding Claim(s) 4, Mahringer et al. teach the arm mechanism (29) supports (23) (the material delivery head); the arm mechanism provides full circumferential positioning of the material delivery head inside of the mandrel at the outside mold surface (Fig. 1).

Regarding Claim(s) 9, AAPA as found on page 1, line 23 – page 4 line 25 of the specification, discloses a device for automated composite lay up using a material delivery head.

But AAPA fails to teach the device, comprising: a mandrel having a vertical axis, wherein the mandrel has an interior mandrel surface that conforms to an outside mold line of the part, a vertical movement shaft disposed inside the mandrel, an arm mechanism supported by the vertical movement shaft; and a material delivery head, supported by the arm mechanism,

wherein the arm mechanism moves and positions the material delivery head relative to the interior mandrel surface, wherein composite material is delivered directly to the outside mold line on the interior mandrel surface.

Mahringer et al. teach the device, comprising: a mandrel (1) having a vertical axis, wherein the mandrel has an interior mandrel surface that conforms to an outside mold line of the part, a vertical movement shaft (8,9,10) disposed inside the mandrel, an arm mechanism (29) supported by the vertical movement shaft; and (23)(a material delivery head), supported by the arm mechanism, wherein the arm mechanism moves and positions the material delivery head relative to the interior mandrel surface, wherein composite material is delivered directly to the outside mold line on the interior mandrel surface (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the device of Mahringer et al. with the device of AAPA so as to position workmen and material at an elevation to permit the operation inside the mandrel (col. 1, lines 39-41).

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987).

Regarding Claim 11, Mahringer et al. teach a platform (7) that is supported and moved up and down by the vertical movement shaft (8,9,10) wherein the arm mechanism (29) is attached to the platform (Fig. 1).

Regarding Claim(s) 13, Mahringer et al. teach the arm mechanism provides full circumferential positioning of (23) (material delivery head) to the outside mold line on said interior mandrel surface.

Regarding Claim(s) 14, Mahringer et al. teach the arm mechanism (29) provides motion of (23) (the material delivery head) relative to the interior mandrel surface in a direction normal to the interior mandrel surface, and the arm mechanism provides rotation of the material delivery head relative to the interior mandrel surface about an axis normal to the interior mandrel surface (Fig. 1).

Regarding Claim(s) 15, AAPA as found on page 1, line 23 – page 4 line 25 of the specification, discloses a device for automated composite lay up using a material delivery head.

But AAPA fails to teach the device, a mandrel having a vertical axis, wherein the mandrel has an interior mandrel surface that conforms to an outside mold line of the part; a vertical movement shaft disposed inside the mandrel, a platform that is supported and moved up and down on the vertical movement shaft; an arm mechanism attached to the platform; and a material delivery head, supported by the arm mechanism, wherein the arm mechanism moves and positions the material delivery head relative to the interior mandrel surface, wherein composite material is delivered directly to the outside mold line on the interior mandrel surface.

Mahringer et al. teach the device, a mandrel (1) having a vertical axis, wherein the mandrel has an interior mandrel surface that conforms to an outside mold line of the part; a vertical movement shaft (8.9.10) disposed inside the mandrel, a platform (7) that is supported and moved up and down on the vertical movement shaft; an arm mechanism (29) attached to the platform; and (23) (a material delivery head), supported by the arm mechanism, wherein the arm

mechanism moves and positions the material delivery head relative to the interior mandrel surface, wherein composite material is delivered directly to the outside mold line on the interior mandrel surface (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the device of Mahringer et al. with the device of AAPA so as to position workmen and material at an elevation to permit the operation inside the mandrel (col. 1, lines 39-41).

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham, 2 USPQ 2d 1647 (1987)*.

Regarding Claim 16, Mahringer et al. teach the arm mechanism(29) provides motion of (23) (the material delivery head) relative to the interior mandrel surface in a direction normal to the interior mandrel surface; and the arm mechanism provides rotation of the material delivery head relative to the interior mandrel surface about an axis normal to the interior mandrel surface, the arm mechanism provides circumferential positioning of the material delivery head relative to the interior mandrel surface (Fig. 1).

4. Regarding Claim(s) 23-25 and 27, AAPA as found on page 1, line 23 – page 4 line 25 of the specification, discloses an aircraft part manufacturing device for automated composite lay up.

But AAPA fails to teach the device comprising : a mandrel having an axis of symmetry and an outside mold surface on the inside of the mandrel, means for situating the mandrel so that the axis of symmetry is vertical; means for supporting a material delivery head inside the

mandrel, and means for moving and positioning the material delivery head inside the mandrel so that composite material is delivered directly to the outside mold surface.

Mahringer et al. teach the device comprising : a mandrel (1) having an axis of symmetry and an outside mold surface on the inside of the mandrel, means for situating the mandrel so that the axis of symmetry is vertical; means for supporting (23) (a material delivery head) inside the mandrel, and means (29) for moving and positioning the material delivery head inside the mandrel so that composite material is delivered directly to the outside mold surface (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the device of Mahringer et al. with the device of AAPA so as to position workmen and material at an elevation to permit the operation inside the mandrel (col. 1, lines 39-41).

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham, 2 USPQ 2d 1647 (1987)*.

5. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Mahringer et al. and Behr et al. (U.S. Patent 3298154).

AAPA as found on page 1, line 23 – page 4 line 25 of the specification, discloses a device for automated composite lay up using a material delivery head.

But AAPA fails to teach the device comprising: a mandrel having a vertical axis, wherein the mandrel has an interior mandrel surface that conforms to an outside mold line of the aircraft

Art Unit: 3726

part, a vertical movement shaft disposed inside the mandrel, a platform wherein: the platform is supported by the vertical movement shaft; the platform is moved up and down on said vertical movement shaft; and the platform rotates about the vertical axis; an arm mechanism attached to the platform; and a material delivery head, supported by the arm mechanism, wherein, the arm mechanism provides motion of the material delivery head relative to the interior mandrel surface in a direction normal to the interior mandrel surface; and the arm mechanism provides rotation of the material delivery head relative to the interior mandrel surface about an axis normal to the interior mandrel surface; the arm mechanism provides circumferential positioning of the material delivery head relative to the interior mandrel surface, and composite material is delivered directly to the outside mold line on said interior mandrel surface.

Mahringer et al. teach the device comprising: a mandrel (1) having a vertical axis, wherein the mandrel has an interior mandrel surface that conforms to an outside mold line of the mandrel, a vertical movement shaft (8,9,10) disposed inside the mandrel, a platform (7) wherein: the platform is supported by the vertical movement shaft; the platform is moved up and down on said vertical movement shaft; an arm mechanism (29) attached to the platform; and (23) (a material delivery head), supported by the arm mechanism, wherein, the arm mechanism provides motion of the material delivery head relative to the interior mandrel surface in a direction normal to the interior mandrel surface; and the arm mechanism provides rotation of the material delivery head relative to the interior mandrel surface about an axis normal to the interior mandrel surface; the arm mechanism provides circumferential positioning of the material delivery head relative to the interior mandrel surface, and composite material is delivered directly to the outside mold line on the interior mandrel surface (Fig. 1).

Art Unit: 3726

Behr et al. teach the platform rotates about the vertical axis (Fig. 1 ; col. 36-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the device of Mahringer et al. and Behr et al. on the device of AAPA so as to position workmen and material at an elevation to permit the operation inside the mandrel (col. 1, lines 39-41) and turn the platform around.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham, 2 USPQ 2d 1647 (1987)*.

6. Claims 28,29 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art (AAPA) in view of Mahringer et al..

AAPA as found on page 1, line 23 – page 4 line 25 of the specification, discloses a method for automated composite lay up of a part.

But AAPA fails to teach the steps of : situating a mandrel, having an axis and an outside mold surface on the inside of the mandrel, so that the axis is vertical; placing the mandrel so that a vertical movement shaft is disposed inside the mandrel, supporting an arm mechanism by the vertical movement shaft wherein the arm mechanism moves and positions a material delivery head inside said mandrel, and delivering composite material directly to said outside mold surface.

Mahringer et al.. teach the steps of : situating a mandrel (1), having an axis and an outside mold surface on the inside of the mandrel, so that the axis is vertical; placing the mandrel so that a vertical movement shaft (8,9,10) is disposed inside the mandrel, supporting an arm mechanism

(29) by the vertical movement shaft wherein the arm mechanism moves and positions (23)(a material delivery head) inside said mandrel, and delivering composite material directly to said outside mold surface (Fig.1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the steps of Mahringer et al. on the method of AAPA so as to position workmen and material at an elevation to permit the operation inside the mandrel (col. 1, lines 39-41).

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA/ Mahringer et al. as applied to claim 28 above, and further in view of Behr et al. (U.S. Patent 3298154).

AAPA/ Mahringer et al. teach the limitations except the step of rotating the platform and the arm mechanism around the vertical axis.

Behr et al. teach the step of rotating the platform and the arm mechanism around the vertical axis(Fig.1 ; col. 36-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to employ the step of Behr et al. on the method of AAPA/ Mahringer et al. so as to turn the arm mechanism around.

8. Regarding Claim(s) 10,19 and 33, a mandrel includes two separable portions that facilitate removal of the parts are well known in the art and It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the mandrel on the device and method of AAPA.

9. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA/Mahringer et al. as applied to claim 15 above, and further in view of Goto et al. (U.S. Patent 4253646).

AAPA/Mahringer et al. teach the limitations except a plurality of material delivery heads, wherein the plurality of material delivery heads delivers composite material directly to the outside mold line on the interior mandrel surface.

Goto et al. teach a plurality of material delivery heads, wherein the plurality of material delivery heads (30) delivers composite material directly to the outside mold line on the interior mandrel surface (Fig. 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the feature of Goto et al. on the device of AAPA/Mahringer et al. so as to deliver the material faster.

10. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA/Mahringer et al. as applied to claim 15 above, and further in view of Behr et al. (U.S. Patent 3298154).

AAPA/Mahringer et al. teach the limitations except : said platform supports a creel (6) for the material delivery head, and the platform is dimensioned to support a human operator (Fig. 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the device of AAPA/Mahringer et al. by adding the feature of Behr et al. so as to human operator can operate the manufacturing process.

Allowable Subject Matter

11. Claims 5 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John C. Hong whose telephone number is 571-272-4529. The examiner can normally be reached on M-F(07:00-16:30)First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Bryant can be reached on 571-272-4526. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



John C. Hong
Primary Examiner
Art Unit 3726

jh
November 12, 2005